

Claim 1 (original): Bottoming device for cross bottom paper bags (1)

- that forms the cross bottoms (1) of paper bags
- in that it implements folds at the extremities of tubular segments from which the bags (1) are produced
- that in this manner applies glue layers to the folded bottoms (1) on the extremities of the tubular segments and/or the sheets (2) intended to be glued with the bottoms (1) with the help of gluers (10, 20, 30, 40)
- connects and glues the folded bottoms (1) and the sheets (2). characterized by the fact that
 - at least one gluer (10, 20, 30, 40)
 - that is equipped with at least one glue reservoir (21) or at least one glue duct (33, 52, 53) in which glue is exposed to a pressure that is higher than the ambient pressure
 - and whereby the at least one glue reservoir (21) or the at least one glue duct (33, 52, 53, 55, 72, 73) is provided with at least one glue output orifice (71) through which glue is directly applied on the sheets (2) and/or folded bottoms (1).

Claim 2 (original): Bottoming device in accordance with claim 1 characterized by the fact that the glue transfer can be carried out between the at least one glue output orifice (71) or other glue carrying components of the bottoming device and the sheets (2) and/or folded bottoms (1) in a contact-free manner.

Claim 3 (currently amended): Bottoming device in accordance with claim 1 ~~one of the aforesaid claims~~ characterized by the fact that the glue ducts (33, 52, 53, 55, 72, 73) that supply glue to the glue output orifices (71) have at least one valve (32).

Claim 4 (currently amended): Bottoming device in accordance with claim 1 ~~one of the aforesaid claims~~ characterized by the fact that

- in the gluing station (10, 20, 30, 40, 50, 60, 70) an application head (31, 41, 50, 60, 80) is provided
- that contains at least one component of at least one glue reservoir (21) or of at least one glue supply line (33, 52, 53, 55, 72, 73) and
- to which at least one glue output orifice (71) is assigned.

Claim 5 (original): Bottoming device in accordance with claim 4 characterized by the fact that the application head (31, 41, 50, 60, 80) has several glue output orifices (71).

Claim 6 (original): Bottoming device in accordance with claim 5 characterized by the fact that the application head (31, 41, 50, 60, 80) has a plate-like form (61) whereby the glue output orifices (71) are provided on the side (76) facing the bag component to be glued.

Claim 7 (currently amended): Bottoming device in accordance with claim 4 ~~one of the claims 4 to 6~~ characterized by the fact that valves (32) are attached to the application head (31, 41, 50, 60, 80).

Claim 8 (original): Bottoming device in accordance with claim 7 characterized by the fact that the valves (32) are attached on the side (66) of the application head (31, 41, 50, 60, 80) facing away from the bag components to be glued.

Claim 9 (currently amended): Bottoming device in accordance with claim 7 ~~or 8~~ characterized by the fact that at least one component of the glue output orifices (71) in the direction in space (y)

running transverse to the transfer direction have a distance (A) between one another that is smaller than the breadth (B) of the valves (32).

Claim 10 (currently amended): Bottoming device in accordance with claim 7 ~~one of the claims 7 to 9~~ characterized by the fact that more glue output orifices (71) than valves (32) are provided on the application head (31, 41, 50, 60, 80).

Claim 11 (currently amended): Bottoming device in accordance with claim 5 ~~one of the claims 5 to 10~~ characterized by the fact that the glue output orifices (71) that are provided in the application head (31, 41, 50, 60, 80) are located in one line running essentially transverse to the transfer direction (y) of the bag components (1,2) to be glued.

Claim 12 (currently amended): Bottoming device in accordance with claim 5 ~~one of the claims 5 to 11~~ characterized by the fact that the valves (32) are provided with glue by at least one borehole or chamber (52, 53) in the application head (31, 41, 50, 60, 80).

Claim 13 (original): Bottoming device in accordance with claim 12 characterized by the fact that at least one borehole or chamber (52, 53) runs essentially transverse to the transfer direction (x) of the bag components (1,2).

Claim 14 (currently amended): Bottoming device in accordance with claim 7 ~~one of the claims 7 to 13~~ characterized by the fact that at least one part of the valves (32) on the application head (31) is arranged in the direction running offset to the transfer direction (x) of the bag components (1, 2).

Claim 15 (original): Bottoming device in accordance with claim 14

characterized by the fact that the valves (32) are arranged in different rows (VR1, VRn) that run transverse (y) to the transfer direction (x) of the bag components (1, 2).

Claim 16 (currently amended): Bottoming device in accordance with claim 4 ~~one of the claims 4 to 15~~ characterized by the fact that the application head (31, 41, 50, 60, 80) is mobile transverse to the transfer direction (y) of the bag components (1, 2) to be glued.

Claim 17 (currently amended): Bottoming device in accordance with claim 4 ~~one of the claims 4 to 16~~ characterized by the fact that the application head (31, 41, 50, 60, 80) can swivel from the glue application position.

Claim 18 (original): Bottoming device in accordance with claim 17 characterized by the fact that the rotatable application head (31, 41, 50, 60, 80) can take up standstill positions dedicated to various definite functions.

Claim 19 (original): Bottoming device in accordance with claim 18 characterized by the fact that at least two standstill positions of the application head (31, 41, 50, 60, 80) are intended that are dedicated to at least two of the following functions:

- application of glue on the bag components (1, 2) to be glued
- sealing the glue output orifices (71)
- wipe off the glue contaminating the application head (31)
- rinse the application head (31)

Claim 20 (currently amended): Bottoming device in accordance with claim 4 ~~one of the claims 4 to 19~~ characterized by the fact that

the distance between the output orifices (71) can be freely selected during the application of glue on the bag components (1, 2) to be glued.

Claim 21 (currently amended): Bottoming device in accordance with claim 1 ~~one of the aforesaid claims~~ characterized by the fact that the at least one glue duct (33, 52, 53, 55, 72, 73) or the at least one glue reservoir (21) has a water connection.

Claim 22 (original): Bottoming device in accordance with claim 21 characterized by the fact that the water connection has a check valve.

Claim 23 (currently amended): Bottoming device in accordance with claim 1 ~~one of the aforesaid claims~~ characterized by the fact that the at least one glue duct (33, 52, 53, 55, 72, 73) or the at least one glue reservoir (21) has at least one of the following characteristics:

- a pressure relief valve
- a pressure sensor
- a pressure controller

Claim 24 (currently amended): Bottoming device in accordance with claim 1 ~~one of the aforesaid claims~~ characterized by the fact that

- the application head (31) has a projection on the side (76) facing the bag components (1, 2) to be glued
- this projection is closer than the output orifices (71) during the glue application of the bag components to be glued (1, 2).

Claim 25 (currently amended): Bottoming device in accordance with claim 4 ~~one of the claims 4 to 24~~ characterized by the fact that the application head (31) is provided with glue and/or water by flexible lines.

Claim 26 (currently amended): Bottoming device in accordance with claim 3 ~~one of the claims 3 to 24~~ characterized by the fact that

- at least one valve (32) that provides at least one glue output orifice (71) with glue can be controlled independent of the other valves (32),
- so that the application of the glue line (3) produced from the at least one glue output orifice (71) can be started and stopped selectively.

Claim 27 (original): Bottoming device in accordance with claim 26 characterized by the fact that the opening and closing of the at least one valve (32) can be carried out also during the glue application of a bag component (1, 2) to be glued.

Claim 28 (currently amended): Bottoming device in accordance with claim 3 ~~one of the claims 3 to 27~~ characterized by the fact that at least 5 valves (32) are provided.

Claim 29 (currently amended): Bottoming device in accordance with claim 9 ~~claims 9 and 10~~ characterized by the fact that the sum (D) of the distances (A) between the glue output orifices that are fed with glue from a valve in the direction in space running transverse (y) to the transfer direction (x) of the bag components (1, 2) to be glued is smaller than the breadth (B) of the valves (32).

Claim 30 (currently amended): Bottoming device in accordance with claim 1 ~~one of the aforesaid claims~~ characterized by the fact that the glue channels (52, 53) that transport the glue to a majority of valves (32) have a common cross-sectional area that is at least half as large as the sum of the cross-sectional areas of the glue output orifices (71) that extrude this glue.

Claim 31 (currently amended): Bottoming device in accordance with claim 1 ~~one of the aforesaid claims~~ characterized by the fact that a hard counter bearing preferentially a metallic cylinder is provided on which the bag components (1, 2) to be glued are located during the glue application.

Claim 32 (currently amended): Bottoming device in accordance with claim 3 ~~one of the claims 3 to 31~~ characterized by the fact that in the transfer direction of the glue to the valves more stoppers are provided with which the glue channels (72, 73, 77, 115) and/or glue output orifices (71, 113) can be sealed.

Claim 33 (currently amended): Bottoming device in accordance with claim 32 ~~the aforesaid claim~~ characterized by the fact that the sealability of the glue channels (72, 73, 77, 115) and/or glue output orifices (71, 113) is ensured by pins (120) and/or screws.

Claim 34 (currently amended): Bottoming device in accordance with claim 33 ~~the aforesaid claim~~ characterized by the fact that the sealing of the channels (115) and/or glue outlet openings takes place with pins (120) that are held rotatably in a format plate system (119), that (120) have a glue outlet that seals the channels (115) and/or output orifices (113) when the pins (120) are rotated.

Claim 35 (original): Bottoming device in accordance with claim 33 pins (120) or screws are inserted in at least a part of the output orifices (113) whereby the main axes of inertia of the pins (120) or screws coincide with the axis of the output orifice (113).

Claim 36 (currently amended): Process for the operation of a bottoming device in accordance with claim 3 ~~one of the claims 3 to 35~~ characterized by the fact that

- at least one valve (32)

- that is active during the formation of a definite glue format (4)
- is opened or closed at other points of time than the other valves (32) during the gluing of a bag component (1, 2).

Claim 37 (currently amended): Process in accordance with claim 36 ~~the aforesaid claim~~ characterized by the fact that the period between the opening and the closing of the valve (32) amounts to less than 5 milliseconds.